United TRAILERS

Owner's Manual

⚠ WARNING

This manual contains safety information and instructions for your trailer.

You must read this manual before loading or towing your trailer.

You must follow all safety precautions and instructions.

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1 SAFETY INFORMATION

1.1 SAFETY ALERT SYMBOLS AND SIGNAL WORDS

Loss of control of the trailer or trailer/tow vehicle combination can result in death or serious injury. The most common causes for loss of control of the trailer are:

- Driving too fast for the conditions.
  (Maximum speed when towing a trailer is 60 mph).
- Overloading the trailer.
- Loading the trailer unevenly.
- Trailer improperly coupled to the hitch.
- Inadequate tow vehicle.
- Inadequate towing hitch.
- Improperly adjusted brakes.
- Not maintaining proper tire pressure.
- Not keeping lug nuts tight.
- Not properly maintaining the trailer structure.

An owner's manual that provides general trailer information cannot cover all of the specific details necessary for the proper combination of every trailer and tow vehicle. Therefore, you must read, understand and follow the instructions given by the tow vehicle manufacturer as well as the instructions in this manual.

Our trailers are built with components produced by various manufacturers. Some of these items have separate instruction manuals. Where this manual indicates that you should read another manual, and you do not have that manual, please call United Trailers at 1-800-637-2592 for a free copy.

The safety information in this manual is denoted by the safety alert symbol: ⚠

The level of risk is indicated by the following signal words:

⚠ Danger

DANGER – Immediate hazards that WILL result in severe personal injury or death if the warning is ignored.

⚠ WARNING

WARNING – Hazards or unsafe practices that COULD result in severe personal injury or death if the warning is ignored.

⚠ Caution

CAUTION – Hazards or unsafe practices that could result in minor or moderate injury if the warning is ignored.

1.2 MAJOR HAZARDS

Driving Too Fast

With ideal road conditions, the maximum speed when safely towing a trailer is 60 mph. If you drive too fast, the trailer tires will overheat and possibly blowout. As your speed increases, you are more likely to suddenly lose control. Never exceed 60 mph while towing the trailer.

⚠ WARNING

Driving too fast for conditions can result in loss of control and cause death or serious injury.

Decrease your speed as road, weather and lighting conditions deteriorate.

Failure to Adjust Handling While Towing a Trailer

- When towing a trailer, you will have decreased acceleration, increased stopping distance, and increased turning radius. This means you must make wider turns to keep from hitting curbs, vehicles, and anything else that is on the inside corner. In addition, you will need a longer distance to pass, due to slower acceleration and increased length. See Section 1.3 (Trailer Towing Guide) on page 17.
- Be alert for slippery conditions. You are more likely to be affected by slippery road surfaces when driving a tow vehicle with a trailer, than driving a tow vehicle without a trailer.
- Anticipate the trailer “swaying.” Swaying is the trailer reaction to the air pressure wave caused by passing trucks and busses. Continued pulling of the trailer provides a stabilizing force to correct swaying. Do not apply the tow vehicle brakes to correct trailer swaying.
- Check rearview mirrors frequently to observe the trailer and traffic.
- Use lower gear when driving down steep or long grades. Use the engine and transmission as a brake. Do not ride the brakes, as they can overheat and become ineffective.
- Be aware of your trailer height, especially when approaching roofed areas and around trees.

Trailer Not Properly Coupled to the Hitch

It is critical that the trailer be securely coupled to the hitch and that the safety chains are correctly attached. Uncoupling while towing may result in death or serious injury.

⚠ WARNING

Proper selection and condition of the coupler and hitch are essential to safely towing your trailer. A loss of coupling may result in death or serious injury.

Be sure the hitch load rating is equal to or greater than the load rating of the coupler.

Be sure the hitch size matches the coupler size.

Observe the hitch for wear, corrosion and cracks before coupling.

Replace worn, corroded or cracked hitch components before coupling the trailer to the tow vehicle.

Be sure the hitch components are tight before coupling the trailer to the tow vehicle.

⚠ WARNING

An improperly coupled trailer can result in death or serious injury.

Do not move the trailer until:

- The coupler is secured and locked to the correct ball size.
- The safety chains are secured to the tow vehicle.
- The trailer jack(s) are fully retracted.

Do not tow the trailer on the road until:

- Tires and wheels are checked.
- The trailer brakes are checked.
- The breakaway switch is connected to the tow vehicle.
- The load is secured to the trailer.
- The trailer lights are connected and checked and lug nuts tightened.

Incorrect Use of Safety Chains

If your trailer comes loose from the hitch for any reason, we have provided safety chains so that control of the trailer can be maintained.

⚠ WARNING

Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle, leading to death or serious injury, if the trailer uncouples from the tow vehicle.

Fasten chains to frame of tow vehicle. Do not fasten chains to any part of the hitch unless the hitch has holes or loops specifically for that purpose.

Cross chains underneath hitch and coupler with enough slack to permit turning and to hold tongue up, if the trailer comes loose.

Incorrect Use of Breakaway Brake

Your trailer may be equipped with a breakaway brake system that can apply the brakes on your trailer if your trailer comes loose from the hitch. The safety chains and breakaway brake system must be in good condition and properly rigged to be effective. The breakaway brake system must not be used as a substitute for a parking brake.

⚠ WARNING

An ineffective or inoperative breakaway brake system can result in a runaway trailer, leading to death or serious injury if the coupler or hitch fails.

The breakaway cable must be connected to the tow vehicle and NOT to any part of the hitch.

Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer. Have it repaired or replaced by a qualified professional.

Mismatch of Trailer and Hitch

⚠ Danger

Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.

Use of a tow vehicle with a towing capacity less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.

Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating (GVWR) of your trailer.

Unsafe Tires, Lug Nuts or Wheels

Trailer tires and wheels are more likely to fail than car tires and wheels because they carry a heavier load. Therefore, it is essential to inspect the trailer tires before each tow.

If a tire has a bald spot, bulge, cuts, is showing any cords, or is cracked, replace the tire before towing. If a tire has uneven tread wear, take the trailer to a dealer service center for diagnosis. Tire imbalance, axle misalignment, incorrect inflation, overloading, or unevenly loading the trailer can cause uneven tread wear.

Tires with too little tread will not provide adequate tracking on wet roadways and can result in loss of control, leading to death or serious injury.

Improper tire pressure causes an unstable trailer and can result in a tire blowout and loss of control. Therefore, before each tow you must also check the tire pressure. Tire pressure must be checked when tires are cold. NOTE: Trailer tires will be inflated to higher pressures than passenger vehicle tires.

⚠ WARNING

Improper tire pressure can result in a blowout and loss of control, which can lead to death or serious injury.

Be sure tires are inflated to pressure indicated on sidewall before towing trailer.

Since trailer wheels and lug nuts (or bolts) are subjected to greater side loads than automobile wheels, they are more prone to loosen. Before each tow, check to make sure they are tight.

⚠ WARNING

Metal creep between the wheel rim and lug nuts will cause rim to loosen and could result in a wheel coming off, leading to death or serious injury.

Tighten lug nuts before each tow.

The proper tightness (torque) for lug nuts is listed in Section 7 (Inspection Service & Maintenance) on page 77. Use a torque wrench to tighten the lug nuts. If you do not have a torque wrench, use a lug wrench from your tow vehicle and tighten the nuts as much as you can. Then have a service garage or trailer dealer tighten the lug nuts to the proper torque.

⚠ WARNING

Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.

Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving and before each tow thereafter. Failure to perform this check can result in a wheel parting from the trailer and a crash, leading to death or serious injury.

Be sure lug nuts are tight before each tow.

Overload

The total weight of the load you put in the trailer, plus the empty weight of the trailer, must not exceed the trailer's Gross Vehicle Weight Rating (GVWR). If you do not know the empty weight of the trailer, you must weigh it at a commercial scale. In addition, you must distribute the load in the trailer so that the load on any tire or axle does not exceed the tire load rating or the Gross Axle Weight Rating (GAWR).

⚠ WARNING

An overloaded trailer can result in loss of control of the trailer, leading to death or serious injury.

Do not exceed the trailer Gross Vehicle Weight Rating (GVWR) or an axle Gross Axle Weight Rating (GAWR).

Do not load a trailer so that the weight on any tire exceeds its rating.

Unsafe Load Distribution

Uneven load distribution can cause tire, wheel, axle or structural failure. Load the trailer properly with the weight evenly distributed from side-to-side and a proper proportion of the weight supported by the hitch.

Check to be sure that no axle is overloaded.

See Section 4 (Loading The Trailer) on page 63 for further information.

⚠ WARNING

Improper tongue weight (load distribution) can result in loss of control of the trailer, leading to death or serious injury.

Make certain that tongue weight is within the allowable range.

Be sure to:

Distribute the load front-to-rear to provide proper tongue weight. (See table on p. 10)

Distribute the load evenly, side-to-side, to avoid tire overload.

Keep the center of gravity low.

In the following table, the second column notes the recommended percentage of Gross Vehicle Weight (GVW) that the tongue of the trailer should support. The Gross Vehicle Weight Rating (GVWR) of your trailer is located on the Certification Label that is mounted on the lower roadside front of the trailer body.

For example, a trailer with a gooseneck hitch and a loaded weight of 12,000 pounds should have 20-25%, or 2,400 to 3,000 pounds, on the tongue. This practice is accepted by many trailer manufacturers.

Tongue Weight as a Percentage of Loaded Trailer Weight	
Type of Hitch	**Percentage**
Ball Hitch (or Bumper Hitch)	10–15%
Gooseneck Hitch	20–25%
Fifth Wheel Hitch	

Towing stability also depends on keeping the center of gravity as low as possible. Load heavy items on the floor over the axles, but do not exceed the Gross Axle Weight Rating (GAWR). Be sure to maintain even side-to-side weight distribution and proper tongue weight.

Shifting Cargo

Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed. See Section 4.2 (Securing The Cargo) on page 65 for further information.

⚠ WARNING

Shifting cargo can result in loss of control of the trailer and can lead to death or serious injury.

Tie down all loads with proper sized fasteners, ropes, straps, etc.

⚠ WARNING

If the door opens, your cargo may be ejected onto the road, resulting in death or serious injury to other drivers.

Use a linchpin, padlock, or lock the RV lock to prevent the door latch from opening.

Always secure the door latch after closing.

Inappropriate Cargo

Your trailer may be designed for specific cargo. If your trailer is designed for specific cargo, only carry that cargo in the trailer. A utility trailer must not be used to carry certain items, such as people, containers of hazardous substances or containers of flammable substances.

⚠ WARNING

Do not transport people inside the trailer, even if it has living quarters. The transport of people puts their lives at risk and may be illegal.

⚠ WARNING

Do not transport flammable, explosive, poisonous or other dangerous materials in your trailer.

Inoperable Brakes, Lights or Mirrors

Be sure that the electric brakes and all of the lights on your trailer are functioning properly before towing your trailer. A multi-pin electrical connector controls electric brakes and lights. Check the trailer lights by turning on your tow vehicle lights. Check the trailer brake lights by having someone step on the tow vehicle brake pedal while you look at the trailer lights. Do the same thing to check the turn signal lights.
If your trailer has electric brakes, your tow vehicle must have an electric brake controller (not supplied by United Trailers) that sends power to the trailer brakes. Before towing the trailer, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less than 5 mph, manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

⚠ WARNING

Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes which can lead to a collision.

Before each tow:

Check that the taillights, brake lights and turn signals work.

Check that the electric brakes work by operating the brake controller inside the tow vehicle.

Standard side mirrors usually do not provide adequate visibility for viewing traffic to the sides and rear of a towed trailer. You must provide mirrors that allow you to safely observe approaching traffic.

Hazards From Modifying Your Trailer

Altering your trailer can damage essential safety items. Even driving a nail or screw can damage an electrical circuit, LP gas line or other feature of the trailer.

Before making any alteration to your trailer, contact your dealer or United Trailers at 1-800-637-2592 and describe the alteration you are considering. Alteration of the trailer structure or modification of mechanical, electrical, plumbing, heating or other systems on your trailer must be performed only by qualified professionals who are familiar with the system as installed.

The United Trailers warranty does not extend to equipment which has been modified, repaired or altered in any way without the express written consent of United Trailers.

Hazards from Accessories

Section 6 (Accessories) on page 69 of this manual contains information about optional accessories that may be on your trailer. Read and follow all of these instructions before operating the accessories.

Generator

If your trailer is equipped with a generator, you must follow the generator manufacturer's instructions. You must also have one or more carbon monoxide detectors in the trailer's accommodation spaces.

Carbon monoxide is an odorless gas that can cause death. You must have an operating carbon monoxide detector inside the accommodation spaces of your trailer. Be certain exhaust from a running generator does not accumulate in or around your trailer by situations such as:

- Being drawn in by fans or ventilators operated in a trailer.
- A prevailing wind.
- Being trapped between your trailer and other trailers, vehicles, buildings, snow banks or other nearby objects

⚠ WARNING

Operating generators can lead to death or serious injury by:

Carbon monoxide

Fire and explosion

Electrocution

Have a working carbon monoxide detector in the accommodation spaces before operating a generator.

Do not refuel a running generator or refuel near ignition sources.

Shore Power

"Shore Power" is the name given to connecting your trailer to a source of electrical power using an extension cord specifically designed for that purpose.

⚠ WARNING

Shore power poses a risk of death due to electrocution or fire.

Always use an electrical cord specifically designed for a shore power connection. Never use an ordinary extension cord.

Always connect the electrical cord to a grounded source of shore power.

Do not remove the third (ground) prong from the shore power plug.

Connect only to a source of proper voltage.

Make certain polarity is correct.

Do not overload electrical circuits.

Always replace fuses or circuit breakers with correct rating.

Always inspect the cord for defects before using.

LP Gas Fuel System

⚠ Danger

You can die or be brain damaged by carbon monoxide.

Make certain the exhaust from LP appliances is directed to the outdoors.

Have a working carbon monoxide detector in the accommodation spaces of your trailer before operating any LP gas appliance.

Do not operate portable grills or stoves inside the trailer.

⚠ WARNING

Risk of death due to fire or explosion.

Only connect an LP gas system to a supply of LP gas, NOT natural gas.

Do not store LP gas tanks inside the trailer.

Only fill an LP gas tank 80% full.

Only fill the tank with LP gas (propane).

Overfilled tanks can release gas and cause an explosion.

⚠ WARNING

Risk of fire or explosion.

If LP gas is detected by smell or by the LP gas detector:

- Do not touch electrical switches.
- Extinguish flames and pilot lights.
- Open doors for ventilation.
- Shut off LP gas supply at the LP tank.
- Leave the area until odor clears.

Correct the source of LP gas leakage before using LP appliances.

Do not use a flame to locate the source of an LP gas leak.

⚠ WARNING

Risk of fire or explosion.

Never attempt to thaw an LP gas regulator. Seek a qualified service technician to fix.

Do not remove the regulator cover or attempt to service the LP gas regulator.

1.2.5 REPORTING SAFETY DEFECTS

If you believe that your vehicle has a defect that could cause a crash, injury or death, you should immediately inform the National Highway Traffic Safety Administration (NHTSA) in addition to notifying United Trailers at 1-800-637-2592.

If NHTSA receives similar complaints, it may open an investigation. If it finds that a safety defect exists in a group of vehicles, it may order a recall and remedy campaign. However, NHTSA cannot become involved in individual problems between you, your dealer, or United Trailers.

To contact NHTSA, you may either call the Vehicle Safety Hotline toll-free at 1-888-327-4236 (TTY: 1-800-424-9153), go to http://www.safercar.gov; or write to:

Administrator
NHTSA
1200 New Jersey Avenue S.E.
Washington, DC 20590

You can also obtain other information about motor vehicle safety from http://www.safercar.gov.

Call 1-800-637-2592 to reach United Trailers.

1.3 TRAILER TOWING GUIDE

- Driving a vehicle with a trailer in tow is vastly different from driving the same vehicle without a trailer in tow. It takes longer to get up to speed. You need more room to turn and pass, and more distance to stop when towing a trailer. You will need to spend time adjusting to the different feel and maneuverability of the tow vehicle with a loaded trailer. Because of the significant differences in all aspects of maneuverability when towing a trailer, the hazards and risks of injury are also much greater than when driving without a trailer. You are responsible for keeping your vehicle and trailer in control, and for all the damage that is caused if you lose control of your vehicle and trailer.
- Find an open area with little or no traffic for your first practice. Before you start towing the trailer, you must follow all of the instructions for inspection, testing, loading and coupling. Adjust the mirrors so you can see the trailer as well as the area to the rear.
- Drive slowly at first, 5 mph or so, and turn the wheel to get the feel of how the tow vehicle and trailer combination responds. Next, make some right and left hand turns. Watch in your side mirrors to see how the trailer follows the tow vehicle. Note that turning with a trailer attached requires more room.
- Stop the rig a few times from speeds no greater than 10 mph. Note the effect that the trailer brakes have when they are the only brakes used. When properly adjusted, the trailer brakes will come on just before the tow vehicle brakes.
- It will take practice to learn how to back up with a trailer attached. Take it slow. Before backing up, get out of the tow vehicle and look behind the trailer to make sure that there are no obstacles. If you place your hands at the bottom of the steering wheel, and with the tow vehicle in reverse, move your hands to the right (counter-clockwise), the rear of the trailer moves to the right. Conversely, rotating the steering wheel to the left (clockwise) with your hands at the bottom of the wheel, the trailer moves to the left. Be careful not to allow the trailer to turn too much, because it may hit the tow vehicle. To straighten the rig out, simply pull forward.

1.4 SAFE TRAILER TOWING GUIDELINES

- Recheck the load tie downs to make sure the load will not shift during towing.
- Before towing, check coupling, safety chains, safety brake, tires, wheels and lights.
- Check the breakaway battery. Make sure it is fully charged.
- Check the lug nuts or bolts for tightness.
- Check coupler tightness after towing 50 miles.
- Adjust the brake controller to engage the trailer brakes before the tow vehicle brakes. Your dealer can assist you by making this adjustment.
- Use your mirrors to verify that you have room to change lanes or pull into traffic.
- Use your turn signals well in advance.
- Allow plenty of stopping distance for your trailer and tow vehicle.
- Do not drive so fast that the trailer begins to sway due to speed. Never drive faster than 60 mph.
- Allow plenty of room for passing. A rule of thumb is that the passing distance with a trailer is 4 times the passing distance without a trailer.
- Shift your automatic transmission into a lower gear for city driving (check tow vehicle Owner's Manual).
- Use lower gears for climbing and descending grades.
- Do not ride the brakes while descending grades; they may get so hot that they stop working. Then you will potentially have a runaway tow vehicle and trailer.
- Slow down for bumps in the road. Take your foot off the brake when crossing the bump.
- Do not brake while in a curve unless absolutely necessary. Instead, slow down before you enter the curve and power through the curve. The towing vehicle will then remain in control of the trailer.
- Do not apply the tow vehicle brakes to correct extreme trailer swaying. Continued pulling of the trailer, and even slight acceleration, or carefully applying the trailer brakes (using the electronic brake controller) will provide a stabilizing force.

- Make regular stops to confirm:
  - ♦ The coupler is secure to the hitch and is locked.
  - ♦ Electrical connections are made.
  - ♦ There is appropriate slack in the safety chains.
  - ♦ There is appropriate slack in the breakaway switch pull-pin cable.
  - ♦ The tires are not visibly low on pressure.
  - ♦ The cargo is secure and in good condition.

1.5 SAFETY WARNING LABELS ON YOUR TRAILER

Check your United Trailer for warning and instruction labels. If you have any questions regarding the labels, call United Trailers at 1-800-637-2592.

⚠ WARNING

To protect you and others against death or serious injury, all labels that apply to your trailer must be on the trailer and must be legible.

Call United Trailers at 1-800-637-2592 for free replacement labels.

You will need to provide us with the number shown at the bottom of the label(s) in order for us to send the correct one(s). If there is no number on the label, a description of the label and the text on the label will be necessary.

2 TIRE SAFETY INFORMATION

This portion of the User's Manual contains tire safety information as required by 49 CFR 575.6.

Section 2.1 contains "Steps for Determining Correct Load Limit – Trailer".

Section 2.2 contains "Steps for Determining Correct Load Limit – Tow Vehicle".

Section 2.3 contains a Glossary of Tire Terminology

Section 2.4 contains information from the NHTSA brochure entitled "Tire Safety – Everything Rides On It". This brochure, as well as the preceding subsections, describes the following items:

- Tire labeling, including a description and explanation of each marking on the tires, and information about the DOT Tire Identification Number (TIN).
- Recommended tire inflation pressure, including a description and explanation of:
  A. Cold inflation pressure.
  B. Vehicle Placard and location on the vehicle.
  C. Adverse safety consequences of under inflation (including tire failure).
  D. Measuring and adjusting air pressure for proper inflation.
- Tire Care, including maintenance and safety practices.
- Vehicle load limits, including a description and explanation of the following items:
  A. Locating and understanding the load limit information, total load capacity, and cargo capacity.
  B. Calculating total and cargo capacities with varying seating configurations including quantitative examples showing / illustrating how the vehicles cargo and luggage capacity decreases as combined number and size of occupants' increases. This item is also discussed in Section 3.
  C. Determining compatibility of tire and vehicle load capabilities.
  D. Adverse safety consequences of overloading on handling and stopping on tires.

2.1 STEPS FOR DETERMINING CORRECT LOAD LIMIT – TRAILER

Determining the load limits of a trailer includes more than understanding the load limits of the tires alone. On all trailers there is a Federal certification/VIN label that is located on the forward half of the left (road) side of the trailer. This certification/VIN label will indicate the trailer's Gross Vehicle Weight Rating (GVWR). This is the most weight the fully loaded trailer can weigh. It will also provide the Gross Axle Weight Rating (GAWR). This is the most weight a particular axle can carry. If there are multiple axles, the GAWR of each axle will be provided.

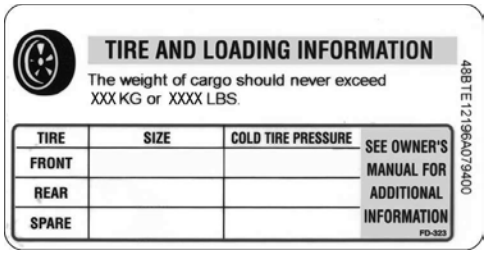
If your trailer has a GVWR of 10,000 pounds or less, there is a vehicle placard located in the same location as the certification label described above. This placard provides tire and loading information. In addition, this placard will show a statement regarding maximum cargo capacity. Cargo can be added to the trailer, up to the maximum weight specified on the placard. The combined weight of the cargo is provided as a single number. In any case, remember: the total weight of a fully loaded trailer cannot exceed the stated GVWR.

For trailers with living quarters installed, the weight of water and propane also need to be considered. The weight of fully filled propane containers is considered part of the weight of the trailer before it is loaded with cargo, and is not considered part of the disposable cargo load. Water however, is a disposable cargo weight and is treated as such. If there is a fresh water storage tank of 100 gallons, this tank when filled would weigh about 800 pounds. If more cargo is being transported, water can be off-loaded to keep the total amount of cargo added to the vehicle within the limits of the GVWR so as not to overload the vehicle. Understanding this flexibility will allow you, the owner, to make choices that fit your travel needs.

When loading your cargo, be sure it is distributed evenly to prevent overloading front to back and side to side. Heavy items should be placed low and as close to the axle positions as reasonable. Too many items on one side may overload a tire. The best way to know the actual weight of the vehicle is to weigh it at a public scale. Talk to your dealer to discuss the weighing methods needed to capture the various weights related to the trailer.

Excessive loads and/or underinflation cause tire overloading and, as a result, abnormal tire flexing occurs. This situation can generate an excessive amount of heat within the tire. Excessive heat may lead to tire failure. It is the air pressure that enables a tire to support the load, so proper inflation is critical. The proper air pressure may be found on the certification/VIN label and/or on the Tire Placard. This value should never exceed the maximum cold inflation pressure stamped on the tire.

TRAILERS 10,000 POUNDS GVWR OR LESS



Tire and Loading Information Placard – Figure 1-1

1. Locate the statement, “The weight of cargo should never exceed XXX kg or XXXX lbs.,” on your vehicle’s placard. See figure 1-1.
2. This figure equals the available amount of cargo load capacity.
3. Determine the combined weight of cargo being loaded on the vehicle. That weight may not exceed the available cargo load capacity.

The trailer’s placard refers to the Tire Information Placard attached adjacent to or near the trailer’s VIN (Certification) label at the left front of the trailer.

2.2 TRAILERS OVER 10,000 POUNDS GVWR

Note: These trailers are not required to have a tire information placard on the vehicle

1. Determine the empty weight of your trailer by weighing the trailer using a public scale or other means. This step does not have to be repeated.
2. Locate the GVWR (Gross Vehicle Weight Rating) of the trailer on your trailer’s VIN (Certification) label.
3. Subtract the empty weight of your trailer from the GVWR stated on the VIN label. That weight may not exceed the available cargo load capacity.

2.3 STEPS FOR DETERMINING CORRECT LOAD LIMIT – TOW VEHICLE

1. Locate the statement, “The combined weight of occupants and cargo should never exceed XXXX lbs.,” on your vehicle’s placard.
2. Determine the combined weight of the driver and passengers who will be riding in your vehicle.
3. Subtract the combined weight of the driver and passengers from XXX kilograms or XXXX pounds.
4. The resulting figure equals the available amount of cargo capacity. For example, if the “XXXX” amount equals 1400 lbs. and there will be five 150 lb. passengers in your vehicle, the amount of available cargo capacity is 650 lbs. (1400-750 (5 x 150) = 650 lbs.).
5. Determine the combined weight of cargo being loaded on the vehicle. That weight may not safely exceed the available cargo capacity calculated in Step #4.
6. If your vehicle will be towing a trailer, load from your trailer will be transferred to your vehicle. Consult the tow vehicle’s manual to determine how this weight transfer reduces the available cargo capacity of your vehicle.

2.4 GLOSSARY OF TIRE TERMINOLOGY

Bias ply tire
A pneumatic tire in which the ply cords that extend to the beads are laid at alternate angles substantially less than 90 degrees to the centerline of the tread.

Cold inflation pressure
The pressure in the tire before you drive.

Curb weight
The weight of a motor vehicle with standard equipment including the maximum capacity of fuel, oil, and coolant, and, if so equipped, air conditioning and additional weight optional engine.

Gross Axle Weight Rating
The maximum weight that any axle can support, as published on the Certification / VIN label on the front left side of the trailer.

Gross Vehicle Weight Rating
The maximum weight of the fully loaded trailer, as published on the Certification/VIN label.

Hitch Weight
The downward force exerted on the hitch by the trailer coupler.

Light truck (LT) tire
A tire designated by its manufacturer as primarily intended for use on lightweight trucks or multipurpose passenger vehicles.

Load rating
The maximum load that a tire is rated to carry for a given inflation pressure.

Radial ply tire
A pneumatic tire in which the ply cords that extend to the beads are laid at substantially 90 degrees to the centerline of the tread.

Recommended inflation pressure
This is the inflation pressure provided by the vehicle manufacturer on the Tire Information label and on the Certification / VIN tag.

PSI (Pounds per Square Inch)
Recommended tire pressure.

Special Trailer (ST) tire
The "ST" is an indication the tire is for trailer use only.

Treadwear indicators (TWI)
The projections within the principal grooves designed to give a visual indication of the degrees of wear of the tread.

2.5 TIRE SAFETY – EVERYTHING RIDES ON IT

The National Traffic Safety Administration (NHTSA) has published a brochure (DOT HS 809 361) that discusses all aspects of Tire Safety, as required by CFR 575.6. This brochure is reproduced in part below. It can be obtained and downloaded from NHTSA, free of charge, from the following web site:

http://www.nhtsa.dot.gov/cars/rules/TireSafety/ridesonit/tires_index.html

Studies of tire safety show that maintaining proper tire pressure, observing tire and vehicle load limits (not carrying more weight in your vehicle than your tires or vehicle can safely handle), avoiding road hazards, and inspecting tires for cuts, slashes, and other irregularities are the most important things you can do to avoid tire failure, such as tread separation or blowout and flat tires. These actions, along with other care and maintenance activities, can also:

- Improve vehicle handling
- Help protect you and others from avoidable breakdowns and accidents
- Improve fuel economy
- Increase the life of your tires.

This booklet presents a comprehensive overview of tire safety, including information on the following topics:

- Basic tire maintenance
- Uniform Tire Quality Grading System
- Fundamental characteristics of tires
- Tire safety tips.

Use this information to make tire safety a regular part of your vehicle maintenance routine. Recognize that the time you spend is minimal compared with the inconvenience and safety consequences of a flat tire or other tire failure.

2.6 SAFETY FIRST–BASIC TIRE MAINTENANCE

Properly maintained tires improve the steering, stopping, traction, and load-carrying capability of your vehicle. Underinflated tires and overloaded vehicles are a major cause of tire failure. Therefore, as mentioned above, to avoid flat tires and other types of tire failure, you should maintain proper tire pressure, observe tire and vehicle load limits, avoid road hazards, and regularly inspect your tires.

2.7 FINDING YOUR VEHICLE'S RECOMMENDED TIRE PRESSURE AND LOAD LIMITS

Tire information placards and vehicle certification labels contain information on tires and load limits. These labels indicate the vehicle manufacturer's information including:

- Recommended tire size
- Recommended tire inflation pressure
- Vehicle capacity weight (VCW–the maximum occupant and cargo weight a vehicle is designed to carry)
- Front and rear gross axle weight ratings (GAWR– the maximum weight the axle systems are designed to carry).

Both placards and certification labels are permanently attached to the trailer near the left front.

2.8 UNDERSTANDING TIRE PRESSURE AND LOAD LIMITS

Tire inflation pressure is the level of air in the tire that provides it with load-carrying capacity and affects the overall performance of the vehicle. The tire inflation pressure is a number that indicates the amount of air pressure– measured in pounds per square inch (psi)–a tire requires to be properly inflated. (You will also find this number on the vehicle information placard expressed in kilopascals (kPa), which is the metric measure used internationally.)

Manufacturers of passenger vehicles and light trucks determine this number based on the vehicle's design load limit, that is, the greatest amount of weight a vehicle can safely carry and the vehicle's tire size. The proper tire pressure for your vehicle is referred to as the "recommended cold inflation pressure." (As you will read below, it is difficult to obtain the recommended tire pressure if your tires are not cold.)

Because tires are designed to be used on more than one type of vehicle, tire manufacturers list the "maximum permissible inflation pressure" on the tire sidewall. This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

2.9 CHECKING TIRE PRESSURE

It is important to check your vehicle's tire pressure at least once a month for the following reasons:

- Most tires may naturally lose air over time.
- Tires can lose air suddenly if you drive over a pothole or other object or if you strike the curb when parking.
- With radial tires, it is usually not possible to determine underinflation by visual inspection.

For convenience, purchase a tire pressure gauge to keep in your vehicle. Gauges can be purchased at tire dealerships, auto supply stores, and other retail outlets.

The recommended tire inflation pressure that vehicle manufacturers provide reflects the proper psi when a tire is cold. The term cold does not relate to the outside temperature. Rather, a cold tire is one that has not been driven on for at least three hours. When you drive, your tires get warmer, causing the air pressure within them to increase. Therefore, to get an accurate tire pressure reading, you must measure tire pressure when the tires are cold or compensate for the extra pressure in warm tires.

2.10 STEPS FOR MAINTAINING PROPER TIRE PRESSURE

- Step 1: Locate the recommended tire pressure on the vehicle's tire information placard, certification label, or in the owner's manual.
- Step 2: Record the tire pressure of all tires.
- Step 3: If the tire pressure is too high in any of the tires, slowly release air by gently pressing on the tire valve stem with the edge of your tire gauge until you get to the correct pressure.
- Step 4: If the tire pressure is too low, note the difference between the measured tire pressure and the correct tire pressure. These "missing" pounds of pressure are what you will need to add.
- Step 5: At a service station, add the missing pounds of air pressure to each tire that is underinflated.
- Step 6: Check all the tires to make sure they have the same air pressure.

2.11 TIRE SIZE

To maintain tire safety, purchase new tires that are the same size as the vehicle's original tires or another size recommended by the manufacturer. Look at the tire information placard, the owner's manual, or the sidewall of the tire you are replacing to find this information. If you have any doubt about the correct size to choose, consult with the tire dealer.

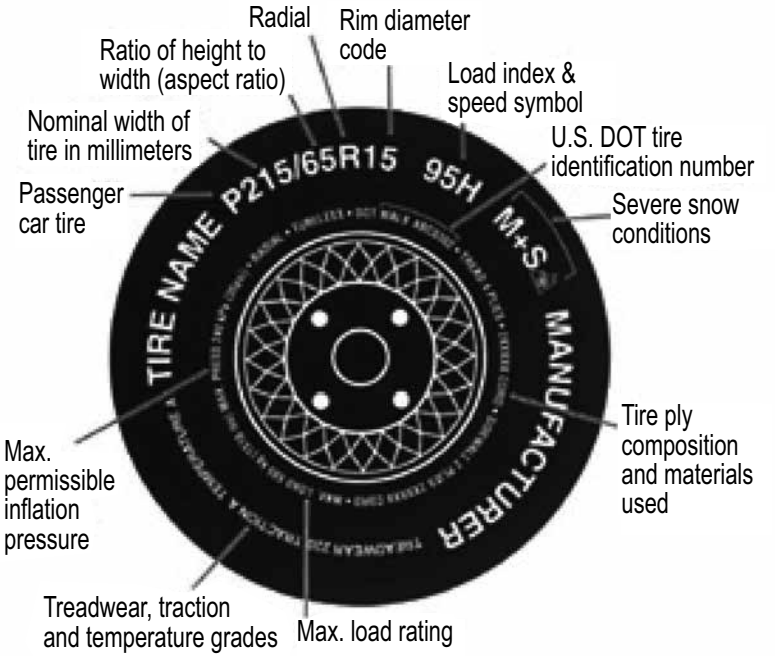
2.12 TIRE REPAIR

The proper repair of a punctured tire requires a patch for the hole and a patch for the area inside the tire that surrounds the puncture hole. Punctures through the tread can be repaired if they are not too large, but punctures to the sidewall should not be repaired. Tires must be removed from the rim to be properly inspected before being patched.

2.13 TIRE FUNDAMENTALS

Federal law requires tire manufacturers to place standardized information on the sidewall of all tires. This information identifies and describes the fundamental characteristics of the tire and also provides a tire identification number for safety standard certification and in case of a recall.

Please refer to the diagram below.
NOTE: This is a passenger tire example.



P
The "P" indicates the tire is for passenger vehicles.

Next number
This three-digit number gives the width in millimeters of the tire from sidewall edge to sidewall edge. In general, the larger the number, the wider the tire.

Next number
This two-digit number, known as the aspect ratio, gives the tire's ratio of height to width. Numbers of 70 or lower indicate a short sidewall for improved steering response and better overall handling on dry pavement.

R
The "R" stands for radial. Radial ply construction of tires has been the industry standard for the past 20 years.

Next number
This two-digit number is the wheel or rim diameter in inches. If you change your wheel size, you will have to purchase new tires to match the new wheel diameter.

Next number
This two- or three-digit number is the tire's load index. It is a measurement of how much weight each tire can support. You may find this information in your owner's manual. If not, contact a local tire dealer. Note: You may not find this information on all tires because it is not required by law.

M+S
The "M+S" or "M/S" indicates that the tire has some mud and snow capability. Most radial tires have these markings; hence, they have some mud and snow capability.

Speed Rating
The speed rating denotes the speed at which a tire is designed to be driven for extended periods of time. Please remember, no trailer is to be hauled at speeds exceeding 60MPH.

U.S. DOT Tire Identification Number
This begins with the letters "DOT" and indicates that the tire meets all federal standards. The next two numbers or letters are the plant code where it was manufactured, and the last four numbers represent the week and year the tire was built. For example, the numbers 3197 means the 31st week of 1997. The other numbers are marketing codes used at the manufacturer's discretion. This information is used to contact consumers if a tire defect requires a recall.

Tire Ply Composition and Materials Used
The number of plies indicates the number of layers of rubber-coated fabric in the tire. In general, the greater the number of plies, the more weight a tire can support. Tire manufacturers also must indicate the materials in the tire, which include steel, nylon, polyester, and others.

Maximum Load Rating
This number indicates the maximum load in kilograms and pounds that can be carried by the tire.

Maximum Permissible Inflation Pressure
This number is the greatest amount of air pressure that should ever be put in the tire under normal driving conditions.

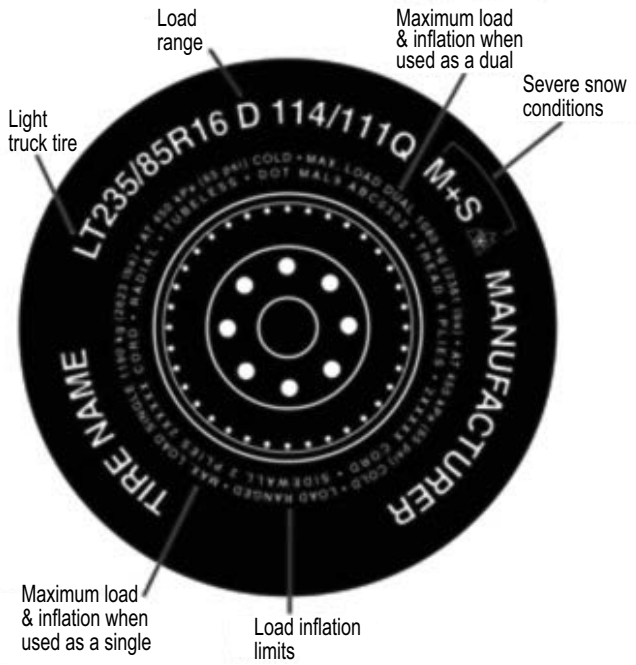
Treadwear Number
This number indicates the tire's wear rate. The higher the treadwear number is, the longer it should take for the tread to wear down. For example, a tire graded 400 should last twice as long as a tire graded 200.

Traction Letter
This letter indicates a tire's ability to stop on wet pavement. A higher graded tire should allow you to stop your car on wet roads in a shorter distance than a tire with a lower grade. Traction is graded from highest to lowest as "AA","A", "B", and "C".

Temperature Letter
This letter indicates a tire's resistance to heat. The temperature grade is for a tire that is inflated properly and not overloaded. Excessive speed, underinflation or excessive loading, either separately or in combination, can cause heat build-up and possible tire failure. From highest to lowest, a tire's resistance to heat is graded as "A", "B", or "C".

Additional Information on Light Truck Tires

Please refer to the following diagram.


Load range
Maximum load & inflation when used as a dual
Severe snow conditions
Light truck tire
LT235/85R16 D 114/111Q M+S
TIRE NAME
MANUFACTURER
Maximum load & inflation when used as a single
Load inflation limits

Tires for light trucks have other markings besides those found on the sidewalls of passenger tires.

LT
The "LT" indicates the tire is for light trucks or trailers.

ST
An "ST" is an indication the tire is for trailer use only.

Max. Load Dual kg (lbs) at kPa (psi) Cold
This information indicates the maximum load and tire pressure when the tire is used as a dual, that is, when four tires are put on each rear axle (a total of six or more tires on the vehicle).

Max. Load Single kg (lbs) at kPa (psi) Cold
This information indicates the maximum load and tire pressure when the tire is used as a single.

Load Range
This information identifies the tire's load-carrying capabilities and its inflation limits.

2.14 TIRE SAFETY TIPS

Preventing Tire Damage

- Slow down if you have to go over a pothole or other object in the road.
- Do not run over curbs or other foreign objects in the roadway, and try not to strike the curb when parking.

Tire Safety Checklist

- Check tire pressure regularly (at least once a month), including the spare.
- Inspect tires for uneven wear patterns on the tread, cracks, foreign objects, or other signs of wear or trauma.
- Remove bits of glass and foreign objects wedged in the tread.
- Make sure your tire valves have valve caps.
- Check tire pressure before going on a long trip.
- Do not overload your vehicle. Check the Tire Information and Loading Placard or User's Manual for the maximum recommended load for the vehicle.

3 COUPLING TO THE TOW VEHICLE

3.1 USE AN ADEQUATE TOW VEHICLE AND HITCH

If the vehicle or hitch is not properly matched to the Gross Vehicle Weight Rating (GVWR) of your trailer, you can cause an accident that could lead to death or serious injury. If you already have a tow vehicle, know your vehicle's tow rating and make certain the trailer's rated capacity is less than or equal to the tow vehicle's rated towing capacity. If you already have (or plan to buy) a trailer, make certain that the tow rating of the tow vehicle is equal to or greater than that of the trailer.

⚠ Danger

Use of a hitch with a load rating less than the load rating of the trailer can result in loss of control and may lead to death or serious injury.

Use of a tow vehicle with a towing capacity less than the load rating of the trailer can result in loss of control, and may lead to death or serious injury.

Be sure your hitch and tow vehicle are rated for the Gross Vehicle Weight Rating (GVWR) of your trailer.

Also, make sure the combined weight of the tow vehicle and trailer does not exceed the tow vehicle manufacturer's recommended Gross Combined Weight Rating.

Trailer Information

The Certification Label is the silver label on the roadside lower front side of the body.

Certification Label

The Certification Label contains the following information for the use of your trailer:

- **VIN:** Vehicle Identification Number.
- **GAWR:** (Gross Axle Weight Rating) The maximum weight that any axle can support, as published on the Certification/VIN label on the front left side of the trailer.
- **GVWR:** (Gross Vehicle Weight Rating) The maximum weight of the fully loaded trailer, as published on the Certification/VIN label.

3.2 OTHER IMPORTANT TOW VEHICLE CONSIDERATIONS

When equipping a vehicle to tow your trailer, ask the vehicle dealer for advice on how to outfit the towing vehicle. Discuss the following information and equipment with the vehicle dealer.

Overall Carrying and Towing Capacity of Tow Vehicle

Vehicle manufacturers will provide you with the maximum capacities of their various models.

Towing Hitch

The towing hitch attached to your tow vehicle must have a capacity equal to or greater than the load rating of the trailer you intend to tow. The hitch capacity must also be matched to the tow vehicle capacity. Only a qualified professional can provide and install the proper hitch on your tow vehicle.

Suspension System

Load equalizing bars, sway control bars, shock absorbers, heavy-duty springs, heavy-duty tires and other suspension components must be able to sufficiently serve the size and weight of the trailer that is going to be towed.

Brake Controller

The brake controller is installed in the tow vehicle. It is essential in the operation of electric brake equipped trailers. The brake controller is not the same as the safety breakaway system that is installed on the trailer.

Side View Mirror

Depending on the width of your trailer, it may be necessary to use extended mirrors. Check with your dealer for mirror requirements. Some states prohibit extended mirrors on a tow vehicle, except while towing.

Heavy-Duty Flasher

A heavy-duty flasher is an electrical component that may be required when your trailer turn signal lights are attached to the tow vehicle flasher circuit.

Electrical Connector

An electrical connector connects the light and brake systems on the trailer to the light and brake controls on the towing vehicle.

Heavy-Duty Engine Oil Cooling System

The tow vehicle engine works harder when a trailer is being towed. Depending on the size of the trailer, you may need to install a separate engine oil cooler. Inadequate cooling may result in sudden engine failure. Ask the tow vehicle dealer if it is necessary to install a heavy-duty cooling system.

Automatic Transmission Oil Cooler

The automatic transmission of a towing vehicle handles more load when a trailer is being towed. Inadequate cooling will shorten transmission life and may result in sudden transmission failure. Ask the tow vehicle dealer if it is necessary to install a separate oil cooler for the automatic transmission.

Emergency Flares and Emergency Triangle Reflectors

It is wise to carry these warning devices even if you are not towing a trailer. It is particularly important to have these when towing a trailer because the hazard flashers of your towing vehicle will not operate for as long a period of time when the battery is running both the trailer lights and tow vehicle lights.

3.3 COUPLING AND UNCOUPLING THE TRAILER

A secure coupling (or fastening) of the trailer to the tow vehicle is essential. A loss of coupling may result in death or serious injury. Therefore, you must understand and follow all of the instructions for coupling.

After coupling the trailer to the tow vehicle, the trailer must be level while being towed.

The following parts are involved in making a secure coupling between the trailer and tow vehicle:

- **Coupler** -- A device on the tongue of the trailer that connects to the hitch on the tow vehicle.
- **Hitch** -- A device on the tow vehicle that supports the weight of the trailer tongue and pulls the trailer. The coupler attaches to the hitch.
- **Safety chains** -- If the coupler connection comes loose, the safety chains can keep the trailer attached to the tow vehicle. With properly rigged safety chains, it is possible to keep the tongue of the trailer from digging into the road pavement, even if the coupler-to-hitch connection comes apart.
- **Trailer lighting and braking connector** -- A device that connects electrical power from the tow vehicle to the trailer. Electricity is used to turn on brake lights, running lights, and turn signals as required. In addition, if your trailer has a separate braking system, the electrical connector will also supply power to the brakes from the tow vehicle.
- **Breakaway switch** -- If the coupler connection comes loose, the breakaway switch can actuate emergency electrical brakes on the trailer. The breakaway switch must be rigged to the tow vehicle with appropriate slack that will activate the switch if the coupler connection comes loose. The breakaway system is fitted with a battery charger that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway battery, you must periodically charge the battery to keep the breakaway system in working order.
- **Jack** -- A device on the trailer that is used to raise and lower the coupler. The jack is sometimes called the “landing gear”.

⚠ WARNING

An improperly coupled trailer can result in death or serious injury.

Do not move the trailer until:

The coupler is secured and locked to the correct ball size.

The safety chains are secured to the tow vehicle.

The trailer jack(s) is fully retracted.

Do not tow the trailer on the road until:

Tires and wheels are checked.

The trailer brakes are checked.

The breakaway switch is connected to the tow vehicle.

The load is secured to the trailer.

The trailer lights are connected and checked and lug nuts tightened.

Various Coupler Designs

Trailers are produced with a variety of coupler devices. One of the sections below may pertain to your trailer.

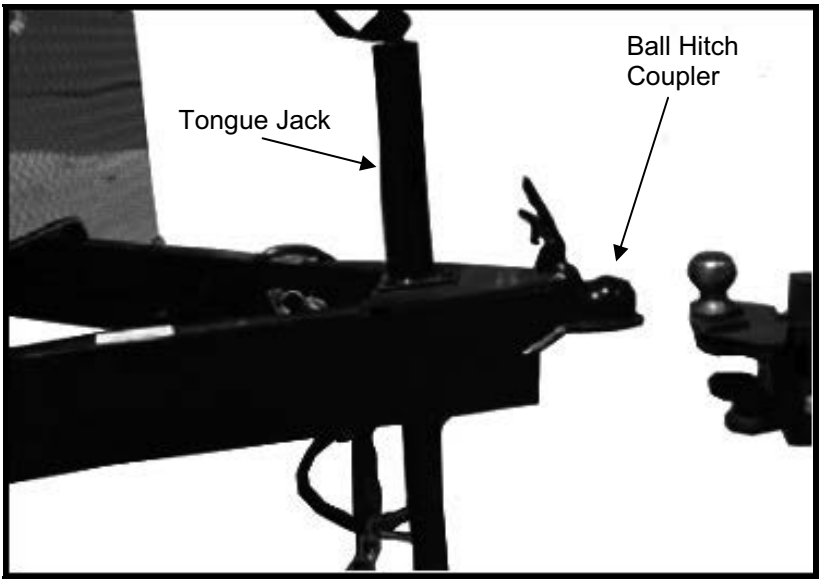
- Ball Hitch Coupler (Section 3.4) page 39
- Gooseneck Hitch Coupler (Section 3.5) page 45
- Fifth Wheel Hitch Coupler (Section 3.6) page 55

If the coupler on your trailer does not resemble one of the couplers shown in the figures, see the coupler instructions. If you do not have coupler instructions, call United Trailers at 1-800-637-2592 for a free copy.

3.4 TRAILER WITH BALL HITCH COUPLER

A Ball Hitch coupler connects to a ball that is located on, or under, the rear bumper of tow vehicle. This system of coupling a trailer to a tow vehicle is sometimes referred to as “bumper pull.”

A Ball Hitch trailer may be fitted with a tongue jack that can raise and lower the coupler. The tongue jack is mounted to the A-frame (front, or tongue) part of the trailer. By rotating the jack handle clockwise, the jack will extend and raise the tongue of the trailer.



We have installed a Ball Hitch coupler that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary ball size are listed on the trailer coupler. You must provide a hitch and ball for your tow vehicle, where the load rating of the hitch and ball is equal to or greater than that of your trailer. The ball size must be the same as the coupler size. If the hitch ball is too small, too large, is underrated, is loose or is worn, the trailer can come loose from the tow vehicle, and may cause death or serious injury.

The tow vehicle, hitch, and ball must have a rated towing capacity equal to or greater than the trailer Gross Vehicle Weight Rating (GVWR).

Before coupling the trailer to the tow vehicle

Be sure the size and rating of hitch ball match the size and rating of the coupler. Hitch balls and couplers are marked with their size and rating.

⚠ WARNING

Coupler-to-hitch mismatch can result in uncoupling, leading to death or serious injury.

Be sure the LOAD RATING of the hitch ball is equal or greater than the load rating of the coupler.

Be sure the SIZE of the hitch ball matches the size of the coupler.

- Wipe the hitch ball clean and inspect it visually and by feel for flat spots, cracks and pits.
- Rock the ball to make sure it is tight to the hitch, and visually check that the hitch ball nut is solid against the lock washer and hitch frame.
- Wipe the inside and outside of the coupler clean and inspect it visually for cracks and deformations. Feel the inside of the coupler for worn spots and pits.
- Be sure the coupler is tight to the tongue of the trailer. All coupler fasteners must be visibly solid against the trailer frame.

⚠ WARNING

A worn, cracked or corroded hitch ball can fail while towing, and may result in death or serious injury.

Before coupling trailer, inspect the hitch ball for wear, corrosion and cracks.

Replace a worn or damaged hitch ball.

A loose hitch ball nut can result in uncoupling, leading to death or serious injury.

Be sure the hitch ball is tight to the hitch before coupling the trailer.

Prepare the coupler and hitch

- Lubricate the hitch ball and the inside of the coupler with a thin layer of automotive bearing grease.
- If your trailer is equipped with a jack, raise the coupler above the ball height.
- Open the coupler locking mechanism. Ball couplers have a locking mechanism with an internal moving piece and an outside handle.
- In the open position, the coupler is able to drop fully onto the hitch ball.
- See the coupler instructions for details of placing the coupler in the “open” position.
- Slowly back up the tow vehicle so that the hitch ball is near the coupler or aligned under the coupler, if the trailer jack has raised the coupler.

Couple the trailer to the tow vehicle

- Raise the bottom surface of the coupler to be slightly above the top of the hitch ball. Use the trailer jack, if provided.
- If your trailer does not have a jack, you will have to lift the coupler manually and place it over the ball.
- If you have a jack, lower the trailer until the coupler fully engages the hitch ball. If the coupler does not line up with the hitch ball, adjust the position of the tow vehicle.
- Engage the coupler locking mechanism. The locking mechanism securely holds the coupler to the hitch ball.
- Insert a pin or lock through the hole in the locking mechanism.
- Be sure the coupler is all the way on the hitch ball and the locking mechanism is engaged. A properly engaged locking mechanism will allow the coupler to raise the rear of the tow vehicle. Using the trailer jack, test to

see that you can raise the rear of the tow vehicle by 1 inch after the coupler is locked to the hitch.

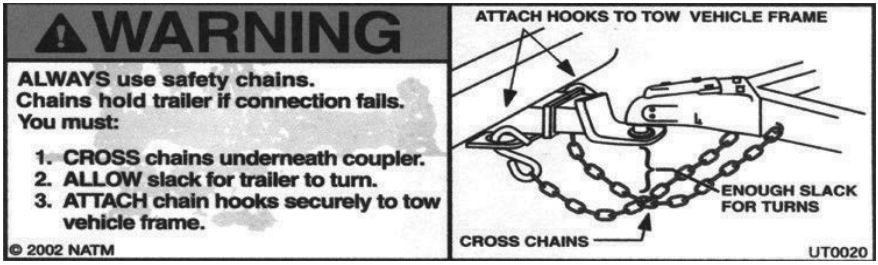
- Lower the trailer so that its entire tongue weight is held by the hitch and continue cranking the jack to its fully retracted position.

If the coupler cannot be secured to the hitch ball, do not tow the trailer. Call United Trailers at 1-800-637-2592 or your dealer for assistance.

Rig the safety chains

- Visually inspect the safety chains and hooks for wear or damage. Replace worn or damaged safety chains and hooks before towing.
- Rig the safety chains so that they have enough slack to permit tight turns, but do not hang too close to the road. If the trailer should uncouple, the safety chains hold the tongue above the road.
- Rig the safety chains so that they cross underneath the coupler.
- Hook to the holes provided in the hitch system. Do not attach them to an interchangeable part of the hitch assembly.

Safety Chain Arrangement Ball Hitch Trailer


WARNING
ALWAYS use safety chains.
Chains hold trailer if connection fails.
You must:
1. CROSS chains underneath coupler.
2. ALLOW slack for trailer to turn.
3. ATTACH chain hooks securely to tow vehicle frame.
© 2002 NATM
ATTACH HOOKS TO TOW VEHICLE FRAME
ENOUGH SLACK FOR TURNS
CROSS CHAINS
UT0020

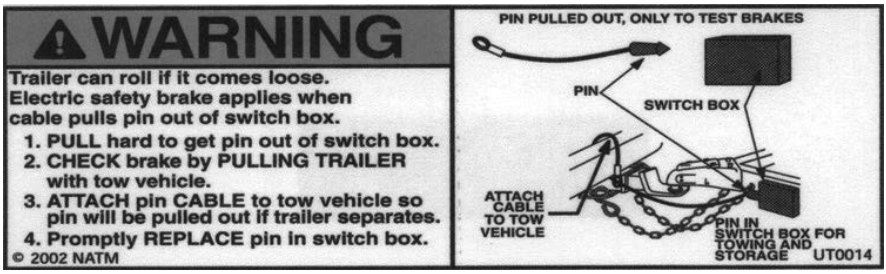
Attach and test electric breakaway brake system

If the coupler or hitch fails, a properly connected and working breakaway brake system will apply electric brakes on the trailer. The safety chains will keep the tow vehicle attached and, as the brakes are applied at the trailer's axles, the trailer/tow vehicle combination will come to a controlled stop.

The breakaway brake system includes a battery and a switch with a pull pin. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway brake controller manufacturer. If you do not have these instructions, call United Trailers at 1-800-637-2592 for a free copy.

The breakaway system is fitted with a battery charger that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway battery, you must periodically charge the battery to keep the breakaway system in working order.

Breakaway System Battery Ball Hitch Trailer


WARNING
Trailer can roll if it comes loose.
Electric safety brake applies when cable pulls pin out of switch box.
1. PULL hard to get pin out of switch box.
2. CHECK brake by PULLING TRAILER with tow vehicle.
3. ATTACH pin CABLE to tow vehicle so pin will be pulled out if trailer separates.
4. Promptly REPLACE pin in switch box.
© 2002 NATM
PIN PULLED OUT, ONLY TO TEST BRAKES
PIN
SWITCH BOX
ATTACH CABLE TO TOW VEHICLE
PIN IN SWITCH BOX FOR TOWING AND STORAGE
UT0014

- Connect the pull pin cable to the tow vehicle so that the pull pin will be pulled out before all of the slack in the safety chains is taken up. Do not connect the pull pin cable to a safety chain or to the hitch ball or hitch ball assembly. This would keep the breakaway brake system from operating when it is needed.
- Remove the pull pin from the switch and test tow the trailer at less than 5 mph. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked. If the brakes do not function, do not tow the trailer until brakeaway system or the brakes are repaired.
- Immediately replace the pull pin. The breakaway system battery discharges rapidly when the pull pin is removed.

⚠ WARNING

An ineffective breakaway brake system can result in a runaway trailer, leading to death or serious injury if the coupler or ball hitch fails.

Connect the breakaway cable to the tow vehicle and NOT to the hitch, ball or support.

Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer. Have it serviced or repaired.

Do not tow the trailer with the breakaway brake system ON because the brakes will overheat which can result in permanent brake failure.

⚠ WARNING

Failure to replace the pull pin will prevent the brakes from working, leading to loss of control, serious injury or death.

If you do not use your trailer for three or more months:

- Charge the battery as needed.

Connect the electrical cables

Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors.

Check all lights for proper operation:

- Clearance Lights -- Turn on tow vehicle headlights.
- Brake Lights -- Step on tow vehicle brake pedal.
- Turn Signals -- Operate tow vehicle directional signal lever.
- Backup Lights -- Put tow vehicle gear shift into reverse.

Check electric brakes for proper operation

If your trailer has electric brakes, your tow vehicle must have an electric brake controller that sends power to the trailer brakes. Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less than 5 mph, manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

⚠ WARNING

Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes and can lead to a collision.

Before each tow:

Check that the taillights, brake lights and turn signals work.

Check that the electric brakes work by operating the brake controller inside the tow vehicle.

Uncoupling the Ball Hitch Trailer with Tongue Jack

Follow these steps to uncouple your ball hitch trailer from the tow vehicle:

- Block tires to prevent the trailer from rolling.
- Disconnect the electrical connector.
- Disconnect the breakaway system cable. Promptly replace the pull pin in the switch.
- Disconnect the safety chains from the tow vehicle.
- Unlock the coupler.
- Rotate the jack handle/crank clockwise. This will slowly extend the jack and transfer the weight of the trailer tongue to the jack.

3.5 TRAILER WITH GOOSENECK COUPLER & DROP LEG JACK(S)

A gooseneck coupler on the trailer connects to a gooseneck ball that you must have installed in the bed of the tow vehicle. This system of coupling a trailer permits the tow vehicle to turn sharper than permitted by a bumper hitch system. A gooseneck coupler consists of a tube with a gooseneck ball receiver at the bottom.

Trailer with gooseneck coupler

We have installed a gooseneck ball receiver that is suitable for the size and weight of the trailer. The load rating of the coupler and the necessary ball size are listed on the gooseneck.

You must provide a gooseneck ball and support structure that is marked with a rating that meets or exceeds the Gross Vehicle Weight Rating (GVWR) of your trailer and matches the size of the gooseneck ball receiver. If the gooseneck ball is too small, is underrated, is loose or is worn, the trailer can come loose from the tow vehicle, and may lead to death or serious injury.

The tow vehicle, support structure and gooseneck ball must have a rated towing capacity equal to or greater than the trailer Gross Vehicle Weight Rating (GVWR).

It is essential that the gooseneck ball be the same size as the gooseneck ball receiver.

The gooseneck ball size and load rating (capacity) are marked on the ball; the hitch capacity is marked on the hitch.

⚠ WARNING

Coupler-to-hitch mismatch can result in uncoupling, leading to death or serious injury.

Be sure the LOAD RATING of the hitch ball is equal or greater than the load rating of the coupler.

Be sure the SIZE of the hitch ball matches the size of the coupler.

The height of the ball receiver on the trailer must be adjusted to match the height of the gooseneck ball on your tow vehicle, so that:

- There is clearance between the bottom of the trailer and the sides of the tow vehicle bed.
- The trailer is level and allows equal weight distribution on all axles.

The gooseneck height adjustment bolts, which have a “cup” that makes a gripping impression into the gooseneck tube, must be tight so that the trailer does not drop to a lower position. Do not over-tighten because the tube can become deformed.

Gooseneck Ball Receiver and Height Adjustment

⚠ WARNING

Improper gooseneck height adjustment can result in overloaded tires, blowout and loss of control, leading to death or serious injury.

Adjust the gooseneck receiver so that the loaded trailer is level.

A trailer having a gooseneck hitch will have drop leg jack(s) for raising and lowering the gooseneck ball receiver. Because we use several drop leg jack mechanisms, the general instructions below may vary slightly from the jack manufacturer’s instructions. If the jack on your trailer does not resemble the jack shown in the figures, follow the instructions provided by the jack manufacturer. If you do not have these instructions, call United Trailers at 1-800-637-2592 for a free copy.

Drop Leg Jack Mechanism

Before attempting to tow the trailer:

- Be sure the size and rating of the gooseneck ball match the size and rating of the receiver. Gooseneck balls and receivers are marked with their size and ratings.
- Wipe the gooseneck ball clean and inspect it visually and feel for flat spots, cracks and pits.

⚠ WARNING

A worn, cracked or corroded gooseneck ball can fail while towing, and may result in death or serious injury.

Before coupling the trailer, inspect the gooseneck ball for wear, corrosion and cracks. Replace a worn or damaged gooseneck ball.

- Rock the ball to make sure it is tight to the ball support and visually check that the gooseneck ball nut is solid against the lock washer and ball support frame.

⚠ WARNING

A loose gooseneck ball can result in uncoupling, leading to death or serious injury.

Be sure the gooseneck ball nut is tight before coupling the trailer.

- Wipe the inside and outside of the receiver clean and inspect it visually for cracks. Feel the inside of the receiver for worn spots and pits. If any of these conditions exist, have the receiver replaced before coupling the trailer.
- Lubricate the inside of the gooseneck ball receiver with automotive bearing grease.
- Be sure the receiver is tight to the trailer. All receiver fasteners must be visibly solid against the trailer frame.
- Release the jack handle or crank from its holder.
- Make certain the ground beneath the jack foot is firm enough to support the tongue weight.
- Rotate the handle/crank clockwise to raise the bottom surface of the gooseneck to be above the top of the gooseneck ball.

Prepare the ball receiver and gooseneck ball

Release the lock on the gooseneck ball receiver. Move the spring-loaded lock to the OPEN position that allows the gooseneck ball to enter the receiver (see "Gooseneck Ball Receiver and Height Adjustment" figure).

Slowly back up the tow vehicle so that the gooseneck ball is aligned under the gooseneck ball receiver.

⚠ WARNING

If the trailer drops during coupling, death or serious injury may result.

There must be no one under the trailer or coupler before or during the coupling operation.

Couple the trailer to the tow vehicle

- Rotate the jack handle counter-clockwise. This will retract the jack causing the gooseneck ball receiver to drop down so it can fully engage the gooseneck ball and transfer the weight of the trailer tongue to the towing vehicle hitch. If the receiver does not line up with the ball, raise the receiver

again and adjust the position of the tow vehicle. Then lower the receiver over the ball. When the drop leg base is no longer resting on the ground, the towing vehicle hitch is holding all of the weight of the trailer tongue.

- Close the lock plate on the gooseneck ball receiver.
- Move the spring-loaded lock plate pin to the CLOSED position. Be sure the locking pin is holding the lock plate.
- Be sure the receiver is all the way on the gooseneck ball and the lock plate is engaged. A properly engaged locking mechanism will allow the coupler to raise the rear of the tow vehicle. Using the trailer jack(s), test to see that you can raise the rear of the tow vehicle by 1 inch.

⚠ Notice

Overloading can damage the drop leg jack. Do not use the drop leg jack to raise the tow vehicle more than 1 inch.

If the gooseneck ball cannot be secured to the receiver, do not tow the trailer. Call United Trailers at 1-800-637-2592 or your dealer for assistance.

After testing to see that the receiver is properly secured and locked to the ball, retract the jack(s) to the fully retracted position.

Return the drop legs to their upper positions. The drop legs are held in the lowered position with a plunger pin. Rotating the plunger pin while pulling it outward will cause it to come out of engagement with the drop leg and the leg can be raised.

⚠ Caution

Keep your feet and hands clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation.

Rig the safety chains

- Visually inspect the safety chains and hooks for wear or damage. Replace worn or damaged safety chains and hooks before towing. Rig the safety chains so that they attach to the safety chain receivers on the hitch. If you are not certain of the hitch provisions for receiving safety chains, contact

the hitch manufacturer or installer. Do NOT attach the safety chains to the gooseneck ball or its support.

- Rig the safety chains so they have sufficient slack to permit turning, but not too much slack – the safety chains must keep the gooseneck on the tow vehicle bed if the trailer uncouples.

⚠ WARNING

Improper rigging of the safety chains can result in loss of control of the trailer and tow vehicle, leading to death or serious injury if the trailer uncouples from the tow vehicle.

Fasten safety chains to safety chain receivers on the hitch, not to the ball.

Have sufficient slack to permit turning and to keep the gooseneck on the bed of trailer if the trailer comes loose.

Attach and test the breakaway brake system

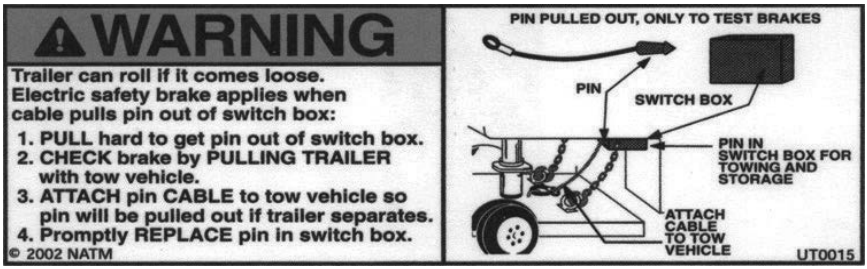
If the coupler or hitch fails, a properly connected and working breakaway system will apply electric brakes on the trailer. The safety chains will keep the tow vehicle attached and as the brakes are applied at the trailer's axles, the trailer/tow vehicle combination will come to a controlled stop.

The breakaway system includes a battery and a switch with a pull pin.

Read and follow the instructions here as well as the instructions that have been prepared by the breakaway system manufacturer. If you do not have these instructions, call United Trailers at 1-800-637-2592 for a free copy.

The breakaway brake system may be fitted with a charger that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway battery you must periodically charge the battery on the trailer to keep the breakaway system in working order.

Breakaway Brake System Gooseneck Coupler


WARNING
Trailer can roll if it comes loose.
Electric safety brake applies when cable pulls pin out of switch box:
1. PULL hard to get pin out of switch box.
2. CHECK brake by PULLING TRAILER with tow vehicle.
3. ATTACH pin CABLE to tow vehicle so pin will be pulled out if trailer separates.
4. Promptly REPLACE pin in switch box.
© 2002 NATM
PIN PULLED OUT, ONLY TO TEST BRAKES
PIN
SWITCH BOX
PIN IN SWITCH BOX FOR TOWING AND STORAGE
ATTACH CABLE TO TOW VEHICLE
UT0015

- Visually inspect the breakaway system for broken parts.
- Connect the pull pin cable to the tow vehicle so that the pull pin will be pulled out before all of the slack in the safety chains is taken up. Do not connect the pull pin cable to a safety chain or a safety chain receiver or to the gooseneck ball or its support. This would keep the breakaway brake system from operating when it is needed. Contact the hitch manufacturer or installer if you are not certain of the hitch provisions for breakaway system connection
- Remove the pull pin from the switch and test tow the trailer at less than 5 mph. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked.
- Immediately replace the pull pin. The breakaway system battery discharges rapidly when the pull pin is removed.

⚠ WARNING

An ineffective or inoperative breakaway brake system can result in a runaway trailer leading to death or serious injury if the coupler or hitch fails.

Connect the breakaway cable to the tow vehicle and NOT to the safety chain, safety chain receiver, gooseneck ball or gooseneck ball support.

Test the function of the breakaway brake system before towing the trailer. Do not tow the trailer if the breakaway brake system is not working. Have it serviced or repaired.

Do not tow the trailer with the breakaway brake system ON because the brakes will overheat which can result in permanent brake failure.

⚠ WARNING

Failure to replace the pull pin will prevent brakes from working, leading to loss of control, serious injury or death.

If you do not use your trailer for three or more months:

- Charge the battery as needed.

Replace the breakaway brake battery at intervals recommended by the battery manufacturer's instructions.

Connect the electrical cables

Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors.

Check all lights for proper operation

- Clearance Lights – Turn on tow vehicle headlights.
- Brake Lights -- Step on tow vehicle brake pedal.
- Turn Signals -- Operate tow vehicle directional signal lever.
- Backup Lights -- Put tow vehicle gear shift into reverse.

Check electric brakes for proper operation

If your trailer has electric brakes, your tow vehicle must have an electric brake controller that sends power to the trailer brakes. Before towing the trailer on the road, you must operate the brake controller while trying to pull the trailer in order to confirm that the electric brakes operate. While towing the trailer at less than 5 mph, manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

⚠ WARNING

Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes and can lead to a collision.

Before each tow:

Check that the clearance lights, taillights, brake lights and turn signals work.

Check that the electric brakes work by operating the brake controller inside the tow vehicle.

Uncoupling the Gooseneck Trailer with Drop Leg Jack

Follow these steps to uncouple your gooseneck hitch trailer from the tow vehicle:

- Block the trailer tires to prevent the trailer from rolling.
- Disconnect the electrical connector.
- Disconnect the breakaway switch cable. Promptly replace the pin in the switch.
- Disconnect the safety chains from the tow vehicle.
- Move the spring-loaded gooseneck receiver lock plate-locking pin to the OPEN position.
- Rotate the lock plate to a position that permits the gooseneck ball to exit the receiver.
- Before releasing drop leg jack, make certain ground surface below jack base will support the trailer tongue load.
- Rotate the drop leg plunger pin handle so that the plunger pin is released from the drop leg.
- The drop leg will drop to the desired lowered position.
- Rotate the plunger pin handle so that the plunger pin is attempting to engage the drop leg.
- Slowly raise the drop leg. The plunger pin will engage a hole in the drop leg.
- Release the handle/crank from its holder and engage it with the jackshaft.
- Rotate the handle/crank from its hold and engage it with the jackshaft.
- Rotate the handle/crank clockwise to slowly extend the jack and transfer the weight of the trailer tongue to the jack.

⚠ Caution

Keep your feet and hands clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation.

- Be sure the plunger pin is fully engaged. Push it in by hand if necessary. The loop part of the plunger pin handle must be touching the plunger pin housing.
- If your trailer has more than one drop leg jack, lower them to the same level, following the above instructions.

⚠ Notice

If the drop legs are not set at the same level, one of the drop leg jacks can be overloaded and can be damaged.

- On two speed jacks, pushing the handle shaft toward the gearbox shifts the gearbox into high-speed mode. When the drop leg base contacts the ground, shift the gearbox into low speed mode by pulling out on the handle shaft until it locks into low gear.

⚠ Notice

Do not use high speed to lift the trailer because the drop leg jack mechanism can be damaged.

High speed is used only to rapidly move the drop leg base into contact with the ground.

- Continue to extend the jack(s), making sure that the ground is providing stable and level support for the trailer.
- After the jack(s) are extended and the gooseneck ball receiver is well clear of the gooseneck ball, disengage the handle from its shaft and return to its holder to permit driving the tow vehicle away.

3.6 TRAILER WITH FIFTH WHEEL COUPLER & DROP LEG JACK(S)

A fifth wheel king pin on the trailer connects to a fifth wheel coupler that you must have installed in the bed of the tow vehicle.

A fifth wheel coupler includes a flat load-bearing plate with a slot, and a mechanism inside the slot that “grips” the king pin.

We have installed a fifth wheel king pin that is suitable for the size and weight of the trailer. You must provide a fifth wheel hitch that is rated for the Gross Vehicle Weight Rating (GVWR) of your trailer.

Trailer with Fifth Wheel Coupler

Before attempting to tow the trailer

- Be sure the size and rating of the fifth wheel and king pin match.
- Wipe the king pin clean and inspect it visually and by feel for flat spots, cracks and pits. Check the condition of the king pin mounting in the bed of the tow vehicle.

⚠ WARNING

A worn, bent, cracked or corroded king pin can fail while towing and may result in death or serious injury.

Before coupling the trailer, inspect the king pin and king pin plate for wear, bending, cracks or corrosion. Replace a worn or damaged king pin.

- Be sure the fifth wheel mechanism operates freely.
- Lubricate the fifth wheel plate surface with a light coat of lithium-base, waterproof grease.
- Be sure the fifth wheel and king pin fasteners are tight and any welds are solid.

⚠ WARNING

A loose fifth wheel or king pin can result in uncoupling, leading to death or serious injury.

Be sure the fifth wheel and king pin are tight before coupling the trailer.

- Be sure the brake line, electrical line, and any other lines are clear of the coupling area.
- Be sure the locks are open.
- Block the trailer wheels, front and rear.
- Make certain that trailer fifth wheel plate is slightly above the king pin plate on the tow vehicle.
- Back tow vehicle up close to the trailer, centering the king pin in the slot of the fifth wheel.
- STOP before engaging the coupling.

⚠ WARNING

If the trailer drops during coupling, death or serious injury may result.

There must be no one under the trailer or coupler before or during the coupling operation.

- Adjust the height of the trailer using the jack so that the fifth wheel plate just touches the king pin plate.
- Slowly back up the tow vehicle, keeping the king pin centered in the slot of the fifth wheel. Continue backing up until the fifth wheel locks firmly on the king pin.
- Attempt to pull forward as an initial test of the closing of the fifth wheel locks.

⚠ WARNING

An improperly coupled fifth wheel can come loose, resulting in death or serious injury.

Do not tow the trailer until all of the visual checks have been performed:

Adjustment nut against fifth wheel.

Secondary lock behind yoke.

Fifth wheel against king pin plate.

Drop Leg Mechanism

Raise the Drop Leg Jack(s)

A trailer having a fifth wheel coupler will be outfitted with one or two drop leg jacks for raising and lowering the fifth wheel coupler. Because we use several drop leg jack mechanisms, the general instructions below may vary slightly from the jack manufacturer's instructions. If the trailer jack on your trailer does not resemble the jack shown in the figures, follow the jack instructions provided by the jack manufacturer. If you do not have these instructions, call United Trailers at 1-800-637-2592 for a free copy.

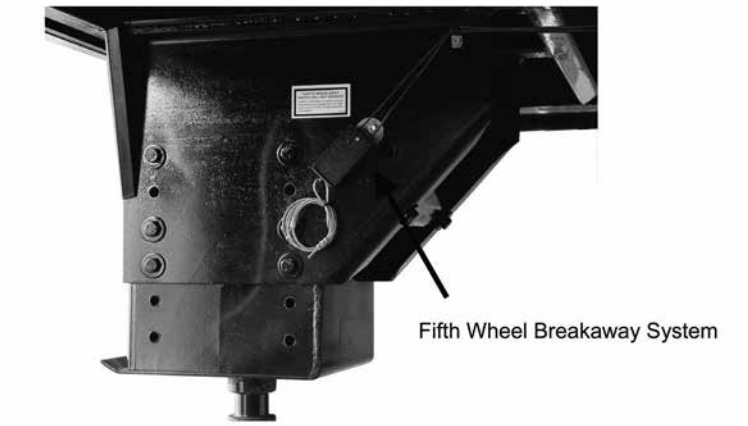
- Rotate the jack handle counter-clockwise. This will slowly retract the jack and transfer the weight of the trailer tongue to the towing vehicle. When the drop leg base is no longer resting on the ground, the towing vehicle hitch is holding all of the weight of the trailer tongue. Continue retracting the jack to its fully retracted position.
- Return the drop legs to their upper positions. The drop legs are held in the lowered position with a plunger pin. Rotating the plunger pin while pulling it outward about ¾ inch will cause it to come out of the engagement with the drop leg and the leg can be raised.
- Remove the trailer wheel blocks.

⚠ Caution

Keep your feet and hands clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation.

Attach and test the breakaway brake system



Fifth Wheel Breakaway System

If the coupler fails, a properly connected and working breakaway system will apply electric brakes on the trailer. The breakaway system includes a battery and a switch with a pull pin. Read and follow the instructions here as well as the instructions that have been prepared by the breakaway system manufacturer. If you do not have these instructions, call United Trailers at 1-800-637-2592 for a free copy.

The breakaway system may be fitted with a charger that draws power from the tow vehicle. If the electrical system on your tow vehicle does not provide power to the breakaway brake battery, you must periodically charge the battery to keep the breakaway brake system in working order.

- Visually inspect the breakaway system for broken parts.
- Connect the pull pin cable to the tow vehicle. Do not connect to king pin or its support.
- Remove the pull pin from the switch and test tow the trailer at less than 5 mph. You should feel the trailer resisting being towed, but the wheels will not necessarily be locked.
- Immediately replace the pull pin. The breakaway brake system battery discharges rapidly when the pull pin is removed.

Do not tow the trailer with the breakaway brake system ON because the brakes will overheat which can result in permanent brake failure.

⚠ WARNING

An ineffective breakaway brake system can result in a runaway trailer leading to death or serious injury if the coupler fails.

Connect the breakaway cable to the tow vehicle and NOT to the king pin or its support.

Before towing the trailer, test the function of the breakaway brake system. If the breakaway brake system is not working, do not tow the trailer. Have it serviced or repaired.

⚠ WARNING

Failure to replace the pull pin will prevent brakes from working, leading to loss of control, serious injury or death.

If you do not use your trailer for three or more months:

- Charge the battery as needed.

Replace the breakaway brake battery at intervals recommended by the battery manufacturer.

Connect the electrical cables

Connect the trailer lights to the tow vehicle's electrical system using the electrical connectors. Check all lights for proper operation:

- Clearance Lights -- Turn on tow vehicle headlights.
- Brake Lights -- Step on tow vehicle brake pedal.
- Turn Signals -- Operate tow vehicle directional signal lever.
- Backup Light -- Put tow vehicle gear shift into reverse.

Check brakes for proper operation. While towing the trailer at less than 5 mph, manually operate the electric brake controller in the tow vehicle cab. You should feel the operation of the trailer brakes.

⚠ WARNING

Improper electrical connection between the tow vehicle and the trailer will result in inoperable lights and electric brakes and can lead to collision.

Before each tow:

Check that the clearance lights, taillights, brake lights and turn signals work.

Check that the electric brakes work by operating the brake controller inside the tow vehicle.

Uncoupling the Fifth Wheel Trailer with Drop Leg Jack(s)

Follow these steps to uncouple your fifth wheel hitch trailer from your tow vehicle:

- Block the trailer tires.
- Disconnect the electrical connector.
- Disconnect the breakaway brake switch cable. Promptly replace the pin in the switch.
- Make certain that ground surface below jack base will support trailer tongue load.
- Rotate the drop leg plunger pin handle so that the plunger pin is released from the drop leg.
- The drop leg will now drop to the ground.

⚠ Caution

Keep your feet and hands clear of the drop legs and drop leg bases when releasing the drop legs.

Always wear shoes or boots while performing this operation.

- Rotate the plunger pin handle so that the plunger pin is attempting to engage the drop leg.
- Slowly raise the drop leg to the desired position. The plunger pin will engage a hole in the drop leg.

- Be sure the plunger pin is fully engaged. Push it in by hand if necessary. The bent part of the plunger pin handle must be touching the plunger pin housing.

If your trailer has two drop leg jacks, lower them both to the same level, following the above instructions.

⚠ Notice

If the drop legs are not set at the same level, one of the drop leg jacks can be overloaded and can be damaged.

- Release the handle/crank from its holder and engage it with the jackshaft.
- Rotate the handle/crank clockwise to slowly extend the jack and transfer the weight of the trailer tongue to the jack.
- On two speed jacks, pushing the handle shaft toward the gearbox can perform rapid extension. This shifts the gearbox into a high-speed mode.
- When the drop leg base contacts the ground, shift the gearbox into low speed mode by pulling out on the handle shaft until it locks into low gear.

⚠ Notice

Do not use high speed to lift the trailer because the drop leg jack mechanism can be damaged.

High speed is used only to rapidly move the drop leg base into contact with the ground.

- Continue to extend the jack(s), making sure that the ground is providing stable and level support for the trailer.
- Turn the crank two or three turns to take some of the weight off the coupling. Do not raise the fifth wheel off the king pin plate.
- After the jack(s) are extended enough to permit driving the tow vehicle away, disengage the jack handle from its shaft and return it to its holder. Do NOT drive the tow vehicle yet!

<u>Open the fifth wheel locks by:</u>

- Pulling the release handle, or
- Using a separate pipe release handle to engage the solid stud on the secondary lock.

Slowly drive the tow vehicle away from the trailer.

4 LOADING THE TRAILER

Improper trailer loading causes many accidents and deaths. To safely load a trailer, you must consider:

- Overall load weight;
- Load weight distribution;
- Proper tongue weight; and
- Securing the load properly.

To determine that you have loaded the trailer within it's rating you must consider the distribution of weight, as well as the total weight of the trailer and its contents. The trailer axles carry most of the total weight of the trailer and its contents (Gross Vehicle Weight, or "GVW"). The remainder of the total weight is carried by the tow vehicle hitch. It is essential for safe towing that the trailer tongue and tow vehicle hitch carry the proper amount of the loaded trailer weight, otherwise the trailer can suddenly sway wildly at towing speed. Read the "Tongue Weight" section below.

The load distribution must be such that no component part of the trailer is loaded beyond its rating. This means that you must consider the rating of the tires, wheels and axles. For tandem and triple axle trailers, you must make sure that the front-to-rear load distribution does not result in overloading any axle.

⚠ WARNING

Do not transport flammable, explosive, poisonous or other dangerous materials in your trailer.

Towing stability also depends on keeping the center of gravity as low as possible. Load heavy items on the floor over the axles. When loading additional items, be sure to maintain even side-to-side weight distribution and proper tongue weight. The total weight of the trailer and its contents must never exceed the total weight rating of the trailer (Gross Vehicle Weight Rating, or "GVWR").

⚠ WARNING

An overloaded trailer can result in loss of control of the trailer, leading to death or serious injury.

Do not exceed the trailer Gross Vehicle Weight Rating (GVWR) or an axle Gross Axle Weight Rating (GAWR).

Do not load a trailer so that the weight on any tire exceeds its rating.

4.1 TONGUE WEIGHT

It is critical to have a portion of the trailer load carried by the tow vehicle. The trailer tongue must exert a downward force on the hitch. This is necessary for two reasons:

1. To be able to maintain control of the tow vehicle/trailer system.
2. To insure that the trailer axle(s) do not exceed their Gross Axle Weight Rating (GAWR).

Too much weight behind the axles of the trailer can cause the tongue to exert an upward pull on the hitch. The rear wheels of the tow vehicle will lose traction and will cause loss of control.

Too little tongue weight can cause the trailer to become unstable at high speeds. Too much tongue weight can cause loss of steering control.

In the following table, the second column notes the recommended percentage of total weight (GVW) that the tongue of the trailer should support. The GVW of your trailer is located on the Certification Label that is mounted on the lower roadside front of the trailer body.

For example, a trailer with a gooseneck hitch and a loaded weight of 12,000 pounds should have 20 - 25%, or 2,400 to 3,000 pounds, on the tongue.

Tongue Weight as a Percentage of Loaded Trailer Weight	
Type of Hitch	**Percentage**
Ball Hitch (or Bumper Hitch)	10–15%
Gooseneck Hitch	20–25%
Fifth Wheel Hitch	

⚠ WARNING

Improper tongue weight (load distribution) can result in loss of control of the trailer, leading to death or serious injury.

Make certain that tongue weight is within the allowable range.

Be sure to:

Distribute the load front-to-rear to provide proper tongue weight (see table on page 64);

Distribute the load evenly, side-to-side, to avoid tire overload; and

Keep the center of gravity low.

Checking Tongue Weight

The tow vehicle and trailer must be on level ground to check the tongue weight.

If you know the weight on your tow vehicle axles when you are not towing a trailer, the trailer tongue weight can be determined with the use of a truck axle scale.

4.2 SECURING THE CARGO

Before loading cargo into your enclosed trailer, inspect the interior of the trailer.

Enclosed trailers may be fitted with “D”-ring hold-downs, and/or a track system that can be used to secure the cargo. Inspect the “D”-rings and track system for looseness or signs of bending before loading the cargo onto the trailer.

⚠ WARNING

Damaged or loose “D”-rings can break, allowing cargo to become loose inside the trailer. Loose cargo can shift the center of gravity and result in loss of control of the trailer.

Inspect “D”-rings, and test them for looseness before loading cargo.

Do not use a damaged or loose “D”-ring to secure cargo.

Since the trailer “ride” can be bumpy and rough, you must secure your cargo so that it does not shift while the trailer is being towed.

⚠ WARNING

Shifting cargo can result in loss of control of the trailer and can lead to death or serious injury.

Tie down all loads with proper sized fasteners, ropes, straps, etc.

4.3 DROP RAMP DOOR OPERATION

Enclosed trailers may be fitted with a drop ramp door. The weight of the drop ramp door is partially supported by a spring and cable counterbalance assembly. If out of adjustment or worn out, it will not provide the expected assistance for raising and lowering the drop ramp door.

⚠ WARNING

A spring and cable counterbalance can inflict serious injury if it breaks or if incorrectly adjusted.

Inspect the cable and cable ends each time the door is operated.

Do not attempt to service the counterbalance. Take the trailer to a qualified professional for service.

- Carefully lower the drop ramp to the ground.
- Load the cargo up the drop ramp and into the trailer.
- Secure the cargo to the trailer using appropriate straps, chains or tensioning devices.
- Close the drop ramp door and secure the trailer door catch using a linchpin or other locking device, so that the door cannot open while the trailer is being towed.

⚠ WARNING

If the door opens, your cargo may be ejected onto the road, resulting in death or serious injury to other drivers.

Always secure the door latch after closing. Place a linchpin in the catch.

5 CHECKING THE TRAILER BEFORE & DURING EACH TOW

5.1 PRE-TOW CHECKLIST

Before towing, double-check all of these items:

- Tires, wheels, and lug nuts.
- Coupler secured and locked
  (See Section 3.3 Coupling and Uncoupling the Trailer).
- Safety chains properly rigged to tow vehicle, not to hitch or ball
  (See Section 3.3 Coupling to the Tow Vehicle)
- Test of lights: Tail, Stop, Turn and Backup.
- Safety breakaway switch cable fastened to tow vehicle, not to safety chains (See Section 3 Coupling to the Tow Vehicle).
- Cargo properly loaded, balanced and tied down with a proper proportion of the weight on the tongue of the trailer.
  (See Section 4 Loading the Trailer).
- Doors and gates latched and secured.

Synchronizing The Brake Systems

Trailer brakes are designed to work with the brakes on the tow vehicle. Do not use either brake system alone to stop the combined tow vehicle and trailer.

⚠ WARNING

If trailer and tow vehicle brakes do not work properly together, death or serious injury can occur.

Road test the brakes in a safe area at no more than 30 mph before each tow.

5.2 CHECK DURING TRIP

After each 50 miles, stop and check the following items:

- Coupler secured.
- Safety chains are fastened and not dragging.
- Cargo secured.

Retighten Lug Nuts at First 10, 25 & 50 Miles

Wheel lugs can shift and settle quickly after being initial assembly and must be checked after the first 10, 25 and 50 miles of driving. Failure to perform this check may result in a wheel coming loose from the trailer, causing a crash leading to death or serious injury.

⚠ WARNING

Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.

Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving.

6 ACCESSORIES

This chapter provides some basic information for the safe operation of several accessories. For many accessories, such as generators and LP appliances, the manufacturer of the accessory has also provided instructions. You must read and follow these instructions before using the accessory. If you are uncertain whether you have all of the instructions, call United Trailers at 1-800-637-2592 before operating the accessory. The following accessories are described in this section:

- Generators
- Accessory Battery
- "Shore Power" connections which provide power by plugging the trailer into an external source of electrical power
- LP Gas Appliances
- Vending or Accessory Doors
- Electric-powered Landing Gear

Many accessories introduce the risk of fire. If you have an accessory on your trailer that uses electricity or fuel, make sure you have a fire extinguisher charged and ready before operating the accessory. Check the fire extinguisher at least once a month. If the fire extinguisher is discharged even partially, it must be recharged. Follow the fire extinguisher manufacturer's instructions for recharging the extinguisher after use. Fire extinguishers are an optional accessory, and will be supplied when ordered from United Trailers.

6.1 GENERATORS

If your trailer is equipped with a generator, you must follow the generator manufacturer's instructions in their manual.

Carbon monoxide is an odorless gas that can cause death. You must have an operating carbon monoxide detector inside the accommodation spaces of your trailer. Be certain exhaust from a running generator does not accumulate in or around your trailer by situations such as:

- Being drawn in by fans or ventilators operated in a trailer.
- Prevailing wind.
- Being trapped between your trailer and other trailers, vehicles, buildings, snow banks or other nearby objects.

⚠ WARNING

Operating generators can lead to death or serious injury by:

Carbon Monoxide

Fire and Explosion

Electrocution

Have a working carbon monoxide detector in the accommodation spaces before operating a generator.

Do not refuel a running generator or refuel near ignition sources.

Before starting the generator, check fuel and oil levels. The generator may have to run for two or three minutes before it allows drawing electricity from it. Read the generator instruction manual. If you do not have the generator instruction manual, call United Trailers at 1-800-637-2592 for a free copy.

6.2 ACCESSORY BATTERY

Your trailer may be outfitted with an accessory battery that operates lighting, electric landing gear, or other accessories. An accessory battery may be kept charged by the tow vehicle, a generator or shore power with converter.

6.3 SHORE POWER

Shore power is the delivery of electrical power from another source to a power inlet on your trailer. To connect your trailer to this source, you must have a shore power cord, specifically designed for this use. DO NOT USE AN ORDINARY EXTENSION CORD. The trailer end of this cord is connected to an electrical box on the trailer. This box contains circuit breakers and/or Ground-Fault Interrupter (GFI) circuit breakers. It may include a power converter to change the shore power (usually 110-volt alternating current) into 12-volt direct current.

Do not assume that a shore power supply is correctly wired. Shore power may have reverse polarity or it may not have the safety ground. Before connecting your trailer, test the shore power by using a polarity and ground tester that can be purchased at an electronics store.

If you have GFI protection, you must periodically test the outlets by pressing the "TEST" button located on the GFI-equipped device.

⚠ WARNING

Shore power poses a risk of death due to electrocution or fire.

Always use an electrical cord specifically designed for shore power connection. Never use an ordinary extension cord.

Always connect the electrical cord to a grounded source of shore power.

Do not remove the "third prong" from the shore power plug.

Connect only to source of proper voltage.

Make certain polarity is correct.

Do not overload electrical circuits.

Always replace fuses or circuit breakers with correct rating.

6.4 LP GAS FUEL SYSTEM

LP gas systems are installed to operate a variety of appliances, such as stoves, refrigerators, heating units and electrical generators. The exhaust fumes from burning LP gas contain carbon monoxide. Carbon monoxide gas is odorless and can cause death or serious brain injury if inhaled. The exhaust from LP appliances must be directed to the outdoors. You must have an operating carbon monoxide detector in the accommodation space of your trailer.

⚠ Danger

You can die or be brain damaged by carbon monoxide.

Make certain the exhaust from LP appliances is directed to the outdoors.

Have a working carbon monoxide detector in the accommodation spaces of your trailer before operating any LP gas appliance.

Do not operate portable grills or stoves inside the trailer.

When used for the first time, or after a period of storage, the LP gas lines will be full of air and must be purged before the appliances will stay lit. Have the LP gas lines purged by a qualified professional.

An LP gas system is designed to operate with a supply of LP gas only, NOT natural gas. A natural gas supply is unsafe for the system's pressure regulation devices.

⚠ WARNING

Risk of death due to fire or explosion.

Only connect an LP gas system to a supply of LP gas, NOT natural gas.

Do not store LP gas tanks inside the trailer.

Only fill an LP gas tank 80% full.

Only fill the tank with LP gas (propane).

Overfilled tanks can release gas and cause an explosion.

Keep the shutoff valve on your LP gas tank closed at all times, except when you are operating an LP gas appliance. Before opening the LP shutoff valve, turn off all LP gas appliances. If an appliance is on when you open the shutoff valve, LP gas will accumulate in the trailer, which can result in an explosion.

Do not use a wrench to open or close the shutoff valve. If the shutoff does not completely stop the flow of LP gas when it is hand-tightened, replace the shutoff valve.

LP gas leaks can result in fire or explosion. If your trailer is equipped with an LP gas system, it must also be equipped with an LP gas detector. The LP gas detector will be located near the floor to detect the heavier-than-air LP gas. If a leak is suspected, use a soapy water solution to search for the leak. Do not use a solution that contains ammonia or chlorine (common in window and other household cleaning compounds), because those chemicals will cause LP piping corrosion.

⚠ WARNING

Risk of fire or explosion.

If LP gas is detected by smell or by the LP gas detector:

- Do not touch electrical switches.
- Extinguish flames and pilot lights.
- Open doors for ventilation.
- Shut off LP gas supply at the LP tank.
- Leave the area until odor clears.

Correct the source of LP gas leakage before using LP appliances.

Do not use a flame to locate the source of an LP gas leak.

Keep the regulator for the LP gas system that is located near the LP gas tank covered with a guard to protect it from road debris. LP gas is prohibited on some roadways, bridges and tunnels. Check a map and with Departments of Transportation (or with the AAA) for travel routes that do not have such restrictions.

LP Gas System Troubleshooting

If your LP gas appliances do not stay lit, it might be because your LP gas system is contaminated with air or moisture. Many LP gas vendors have facilities to purge the air from an LP gas system.

If your LP gas system is not providing gas, even when the shutoff valve is open, it might be because the LP gas regulator has frozen water in it, or you may be out of gas.

⚠ WARNING

Risk of fire or explosion.

Never attempt to thaw an LP gas regulator. Seek a qualified service technician to fix.

Do not remove the regulator cover or attempt to service the LP gas regulator.

7 INSPECTION, SERVICE & MAINTENANCE

7.1 INSPECTION, SERVICE & MAINTENANCE GUIDELINES

You must inspect, maintain and service your trailer regularly to insure safe operation and keep the warranty intact. If you cannot or are unable to perform this inspection, have your dealer do it. Throughout this manual are many instructions to insure your safety while you are using your trailer.

The following is a short list of maintenance items you should follow to keep your trailer in top condition:

- Once a year, check the roof sealant for cracks or tears that could have occurred while driving. Tree branches have been known to damage the sealant on the roof. Reseal with the original sealant if possible. If your dealer does not have the sealant, call United Trailers at 1-800-637-2592.
- Always check the battery in the breakaway system, and any other batteries that are in your trailer to make sure your trailer functions properly.
- Check the axle manufacturer's guide for your trailer and follow the instructions on how to maintain your axles and keep them in proper working condition.
- Inspect your tires before every trip for proper air inflation and damage of any kind. Check the lug nuts for proper torque.
- Inspect your coupler, safety chains, and jack to make sure they are in proper working condition.
- Make sure all running lights, clearance lights, tail and brake lights are in working order.
- Inspect all parts of the steel frame for any structural failure.
- Inspect all bolts and fasteners that may apply to your trailer.

7.2 INSPECTION AND SERVICE WARNINGS

The following warnings apply to service and inspections:

⚠ WARNING

Worn or broken suspension parts can cause loss of control and injury may result.

Have trailer professionally inspected annually and after any impact.

⚠ WARNING

Never crawl under your trailer unless it is on firm and level ground and resting on properly placed and secured jack stands.

⚠ WARNING

Broken or damaged fasteners or welds can cause injury or damage to trailer and contents.

Inspect for and repair all damaged parts at least once a year.

⚠ WARNING

Improper weld repair will lead to early failure of the trailer structure and can cause serious injury or death.

Do not repair cracked or broken welds unless you have the proper skills and equipment. If not, have the welds repaired by a qualified professional.

⚠ WARNING

If electric breakaway brakes do not operate when trailer is uncoupled from the tow vehicle, death or serious injury can occur.

Check emergency breakaway brake system before each tow.

⚠ WARNING

Improper operating taillights, stoplights and turn signals can cause collisions.

Check all lights before each tow.

⚠ WARNING

Worn, damaged or under-inflated tires can cause loss of control, resulting in damage, serious injury and possibly death.

Inspect tires before each tow.

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⚠ WARNING

Lug nuts are prone to loosen after initial installation, which can lead to death or serious injury.

Check lug nuts for tightness on a new trailer or when wheel(s) have been remounted after the first 10, 25 and 50 miles of driving.

⚠ WARNING

Metal creep between the wheel rim and lug nuts will cause rim to loosen and could result in a wheel coming off, leading to death or serious injury.

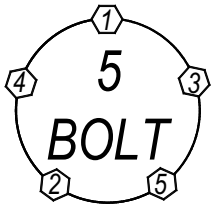
Tighten lug nuts before each tow.

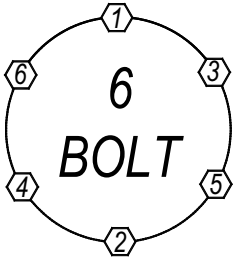
Even though these inspections sound simple, a qualified professional should do them. This could be United Trailers, your dealer who you purchased the trailer from, or an authorized repair facility. Always call ahead for an appointment. This inspection may not be free, but it is well worth the money spent to insure your safety and the safety of others on the road.

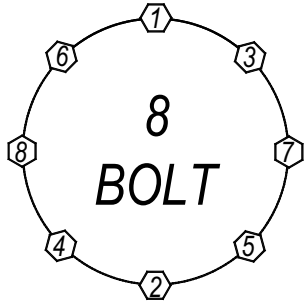
If at any time you have questions that have not been answered in this manual, please feel free to contact the United Trailers service department. They will be more than happy to answer any questions you may have. Call 1-800-637-2592 and ask for the service department.

Lug Nut Tightening Sequence

Tighten the lug nuts to the proper torque for the axle size on your trailer to prevent wheels from coming loose. Use a torque wrench to tighten the fasteners. If you do not have a torque wrench, tighten the fasteners with a lug wrench as much as you can, then have a service garage or dealer tighten the lug nuts to the proper torque. Over-tightening will result in breaking the studs or permanently deforming the mounting stud holes in the wheels.





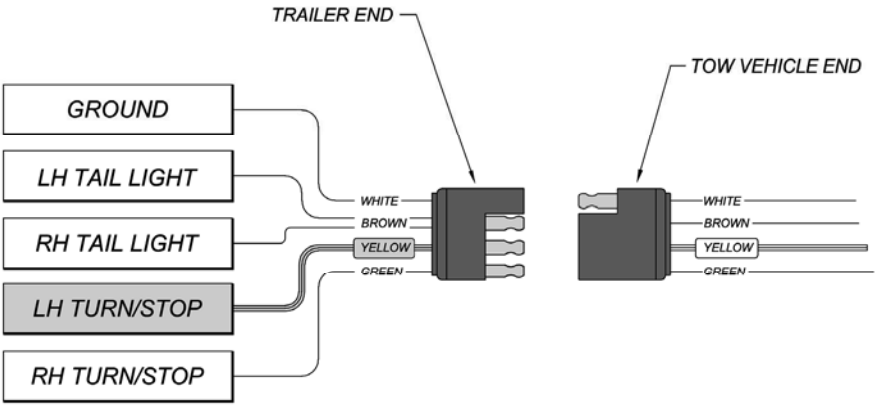


Lug Nut Torque – Steel Wheels		
Axle Rating Pounds	**Stud Size**	**Torque Foot-pounds**
3,000	½ inch	90-120
3,500	½ inch	90-120
5,200	½ inch	90-120
6,000	9/16 inch	140-170
7,000	9/16 inch	140-170
8,000	5/8 inch	275-325

Lug Nut Torque – Aluminum Wheels		
Rim Size	**Stud Size**	**Torque Foot-pounds**
15 inch (5 or 6 hole)	½ inch	90-120
16 inch (8 hole)	9/16 inch	120-140
17.5 inch (8 hole)	5/8 inch Alcoa	140-160

8 WIRING DIAGRAMS

4-Way Connector



7-Way Connector